

WHAT IS CLAIMED IS:

1. A ferroelectric capacitor, comprising:

2 a first electrode layer located over a substrate, wherein the
3 first electrode layer includes iridium;

4 an oxide electrode template located over the first electrode
5 layer;

6 a ferroelectric dielectric layer located over the oxide
7 electrode template; and

8 a second electrode layer located over the ferroelectric
9 dielectric layer.

2. The ferroelectric capacitor as recited in Claim 1 wherein

2 the oxide electrode template forms a portion of a first electrode.

3. The ferroelectric capacitor as recited in Claim 1 wherein

2 the oxide electrode template comprises a perovskite material.

3 4. The ferroelectric capacitor as recited in Claim 1 wherein

4 the oxide electrode template comprises a distorted perovskite
5 material.

5. The ferroelectric capacitor as recited in Claim 1 wherein

2 the oxide electrode template is selected from the group consisting

3 of SrIrO₃ and SrRuO₃.

6. The ferroelectric capacitor as recited in Claim 1 wherein
2 the oxide electrode template is selected from the group consisting
3 of BaPbO₃, PbIrO₃, PbRuO₃, BiRuO₃, BiIrO₃, (La, Sr)CoO₃, CaRuO₃, and
4 BaPbO₃.

7. The ferroelectric capacitor as recited in Claim 1 wherein
2 the oxide electrode template has a thickness ranging from about 20
3 nm to about 100 nm.

8. The ferroelectric capacitor as recited in Claim 1 wherein
2 the oxide electrode template has a resistivity less than about 400
3 micro-ohms/cm.

9. The ferroelectric capacitor as recited in Claim 1 wherein
2 the oxide electrode template and the ferroelectric dielectric layer
3 have substantially similar crystal structures.

10. The ferroelectric capacitor as recited in Claim 1 wherein
2 the oxide electrode template is a first oxide electrode template
3 and further including a second oxide electrode template located
4 between the ferroelectric dielectric layer and the second electrode
5 layer.

11. A method for manufacturing a ferroelectric capacitor,

2 comprising:

3 forming a first electrode layer over a substrate;

4 forming an oxide electrode template over the first electrode
5 layer;

6 forming a ferroelectric dielectric layer over the oxide
7 electrode template; and

8 forming a second electrode layer over the ferroelectric
9 dielectric layer, wherein the ferroelectric capacitor is formed
10 only using temperatures of about 500°C or less.

12. The method as recited in Claim 11 wherein forming an

2 oxide electrode template includes forming an oxide electrode
3 template comprising a perovskite material.

13. The method as recited in Claim 11 wherein forming an

2 oxide electrode template includes forming an oxide electrode
3 template comprising a distorted perovskite material.

14. The method as recited in Claim 11 wherein forming an

2 oxide electrode template includes forming an oxide electrode
3 template comprising a material selected from the group consisting
4 of SrIrO₃ and SrRuO₃.

15. The method as recited in Claim 11 wherein forming an
2 oxide electrode template includes forming an oxide electrode
3 template comprising a material selected from the group consisting
4 of BaPbO₃, PbIrO₃, PbRuO₃, BiRuO₃, BiIrO₃, (La,Sr)CoO₃, CaRuO₃, and
5 BaPbO₃.

16. The method as recited in Claim 11 wherein forming an
2 oxide electrode template includes forming an oxide electrode
3 template having a thickness ranging from about 20 nm to about 100
4 nm.

17. The method as recited in Claim 11 wherein forming an
2 oxide electrode template includes forming an oxide electrode
3 template having a resistivity less than about 400 micro-ohms/cm.

18. The method as recited in Claim 11 wherein forming an
2 oxide electrode template and forming a ferroelectric dielectric
3 layer includes forming an oxide electrode template and forming a
4 ferroelectric dielectric layer having substantially similar crystal
5 structures.

19. The method as recited in Claim 11 wherein forming an
2 oxide electrode template includes forming a first oxide electrode
3 template and further including forming a second oxide electrode

4 template between the ferroelectric dielectric layer and the second
5 electrode layer.

20. The method as recited in Claim 11 wherein the first
2 electrode layer is an iridium electrode layer.

21. A ferroelectric random access memory (FeRAM) device,

2 comprising:

3 a transistor having source/drain regions located over a
4 semiconductor substrate;

5 an interlevel dielectric layer located over the transistor,
6 the interlevel dielectric layer having a conductive plug therein
7 contacting at least one of the source/drain regions; and

8 a ferroelectric capacitor located over the interlevel
9 dielectric layer and contacting the conductive plug, including;

10 a first electrode layer located over the interlevel
11 dielectric layer, wherein the first electrode layer includes
12 iridium;

13 an oxide electrode template located over the first
14 electrode layer;

15 a ferroelectric dielectric layer located over the oxide
16 electrode template; and

17 a second electrode layer located over the ferroelectric
18 dielectric layer.

22. The ferroelectric random access memory (FeRAM) device as

2 recited in Claim 21 wherein at least a portion of the transistor
3 includes a nickel silicide.